



01/ DESIGN RESILIENCY

BELMONT HIGH SCHOOL

Resilient Design pursues Buildings + Communities that can survive, recover, grow and thrive when facing acute shock events or long-term stressors

THE 3 QUESTIONS:

01 / What are the **projections** in your project location?

What are the Shocks and Stressors associated with those projections.

02 / What are the **vulnerabilities** as a result of those projections?

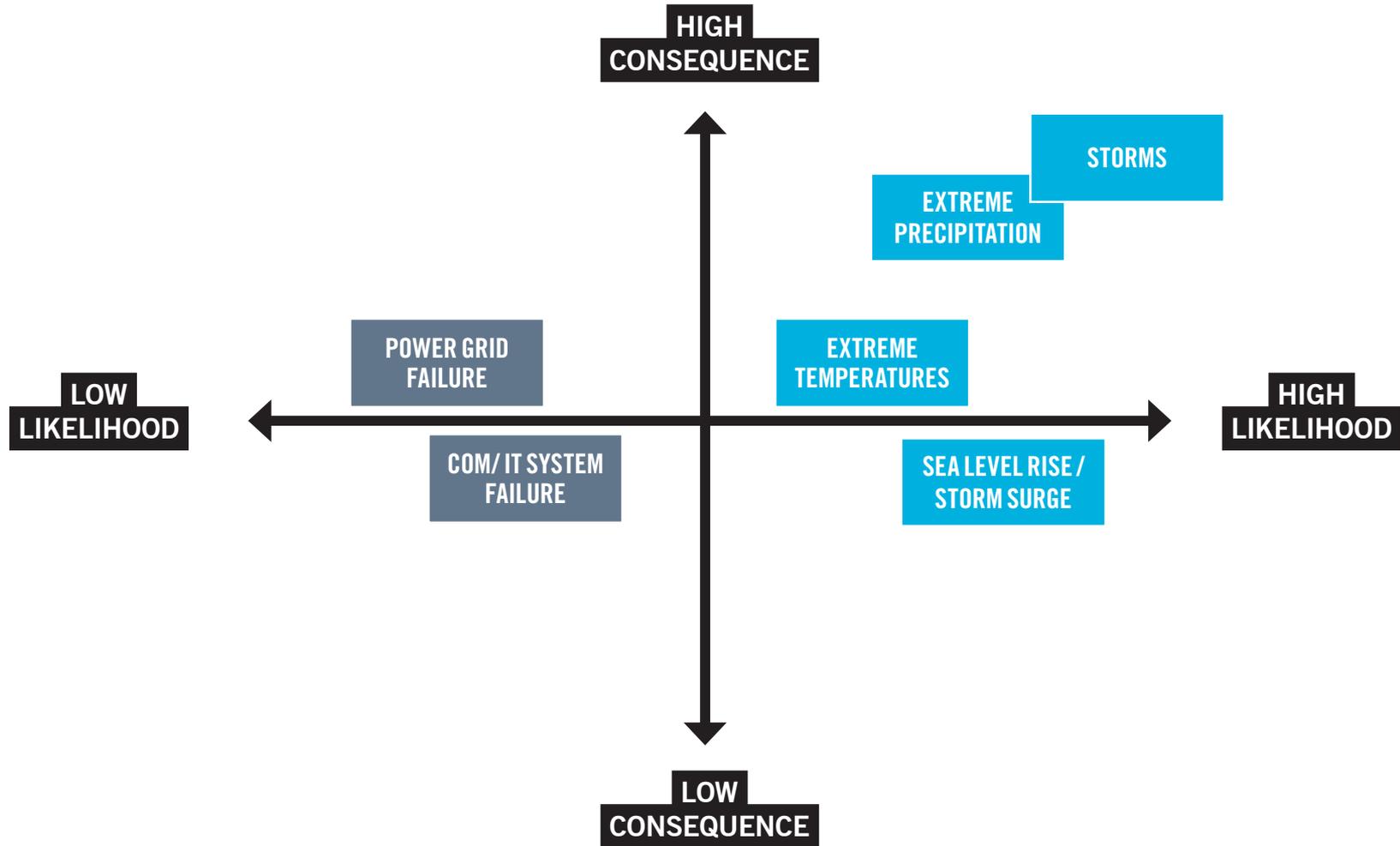
These are Social, Economic and Environmental vulnerabilities.

03 / How does Belmont's **design solution** address those vulnerabilities?

Set goals, define strategies and review at each phase

RESILIENCE

01 / What are the **projections** in your project location?

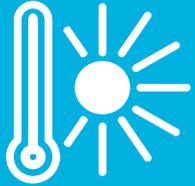


According to the U.S. Climate Tool Kit and Climate Ready Boston, 2016

Sourced from Rockefeller Foundation NDRC Academies

RESILIENCE

01 / What are the [projections](#) in your project location?



EXTREME TEMPERATURES

Boston's summers are getting hotter

NOAA projections: 40 days over 90 degrees by 2030



EXTREME PRECIPITATION

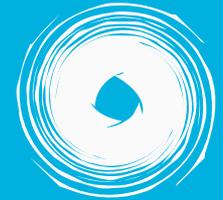
From 1958-2010 there has been a substantial increase in the number of extreme precipitation events



SEA LEVEL RISE / STORM SURGE

Alewife Brook watershed is further taxed by storm surges

By 2070 sea level may be 3 feet higher compounding the issue



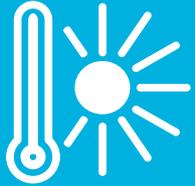
STORMS

Storms are the greatest concern in Boston.

Climate projections predict them happening more frequently and with more intensity.

RESILIENCE

02 / What are its **vulnerabilities** as a result of those projections?



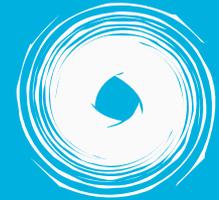
EXTREME TEMPERATURES



EXTREME
PRECIPITATION



SEA LEVEL RISE /
STORM SURGE



STORMS

Multiple Health Impacts

Infrastructure/Building Failures

Inability to Work/Attend School

Onsite Flooding

Infrastructure/Building Failures

Inability to Teach / Attend School

Loss of Property Value/
Stability

Potential Loss of Insurability

Loss of Key Functions

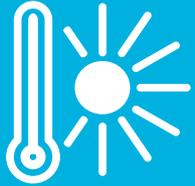
Educational Risk

Loss of Educational time

Compounding Educational Impacts Due To Repairs

RESILIENCE

03 / How does your **design solution** address those vulnerabilities?



EXTREME TEMPERATURES

Reduce heat loads

Establish passive survivability

Prioritize generator backup assignments

Identify if building will be an informal cooling center



EXTREME PRECIPITATION

Integrate greater onsite stormwater catchment within landscape design

Locate critical equipment above flood risk

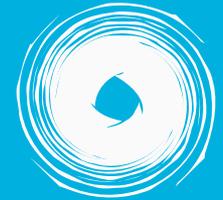
Program lower levels to assume lower costs in the event of water inundation



SEA LEVEL RISE / STORM SURGE

Determine Sea Level Rise target and backup strategy given climate dynamics (look to Cambridge studies).

Set Finish Elevations and Freeboard to accommodate Alewife Brook Flood strategy



STORMS

Develop shelter strategies for storm scenarios

Evaluate long-term impact of storm frequencies

Identify if building will be a safe community space in an event